Current Biology Vol 18 No 20
R938

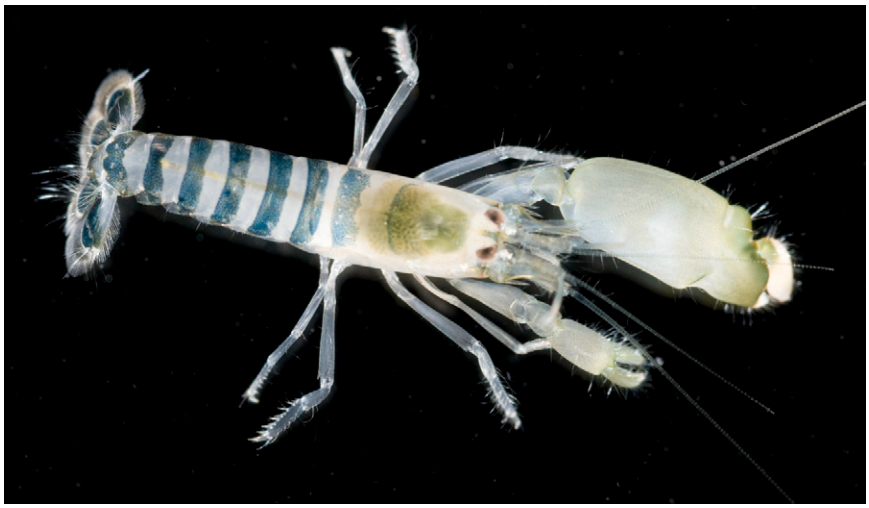
Feature

Reef revelations

The results of a new survey of organisms at three sites on the Great Barrier Reef have revealed a wealth of new species. **Hannah Robertson** reports.

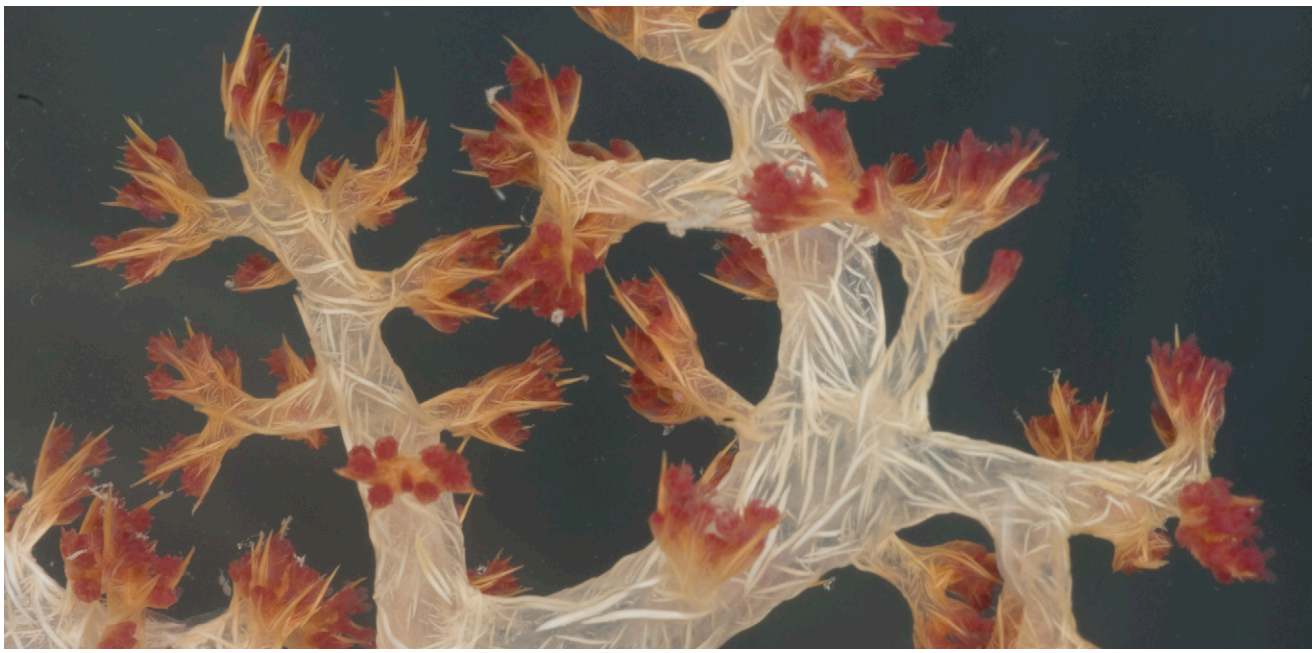
While scientists at CERN are no doubt struggling to contain their disappointment at delays to experiments that may reveal new insights into the origins of life, scientists at the Australian Institute of Marine Science must be struggling to contain their excitement as they set about characterising and categorising a cornucopia of newly discovered species. With nearly 150 new soft corals as well as scores of amphipod and the odd few tanaid crustaceans to classify, they have their work cut out for them.

A series of diving expeditions at Lizard and Heron Islands in Queensland and the Ningaloo Reef in western Australia has led to the discoveries. They are part of a global effort, known as the Census of Marine Life. The coral reef component (www.creefs.org) aims to inventory marine species so that the effects of climate change, overfishing, pollution and other threats to reefs and oceans can be more accurately measured. After all, how can we know how many species are being affected if we don't know how many species there are? And it would appear there are many more than we know about.



Novel: The green-banded snapping shrimp. (Photo: Gary Cranitch, Queensland Museum 2008.)

Among the curiosities discovered in this four-year survey are tiny shrimp-like animals, tanaid crustaceans, some of which have claws longer than their bodies; parasitic isopods, known as cymothoids, that eat the tongues of fish; and many polychaetes, known as bristle worms and related to



Brilliant: Soft coral Dendronepthya. (Photo: Gary Cranitch, Queensland Museum 2008.)

leeches and earthworms. It is not yet clear just how many of these are new discoveries, though the number is in the hundreds, but it is estimated that anywhere from one to nine million ocean species remain to be found, making this haul just the tip of the iceberg.

The divers also placed little structures they refer to as doll's houses, but more formally known as Autonomous Reef Monitoring Systems (ARMS), on the ocean floor in the hope that marine animals will colonise them and can then be collected for study over the next three years. Researchers anticipate that many more new species remain to be found in these locations and the ARMS are one of several efforts to standardise collection methods so that research worldwide can be better compared. Scientists are also standardising methods for sampling biodiversity in dead corals, which can contain crustaceans, molluscs and echinoderms.

The Australian survey is part of an unprecedented global census of coral reefs, CReefs, one of the 17 Census of Marine Life projects. Coral reefs are highly threatened repositories of extraordinary biodiversity but little is known compared with terrestrial ecosystems.

CReefs, led by scientists at the Australian Institute of Marine Science, the Smithsonian Institution and the Pacific Islands Fisheries Center of the US National Oceanic and Atmospheric Administration, aims to census life in coral reef ecosystems, to improve access to information on coral reefs throughout the world, and to strengthen tropical taxonomic expertise. The biodiversity data generated will be made publicly available through the Ocean Biogeographic Information System (Obis; www.iobis.org) an initiative of the Census of Marine Life.

The success of the Australian studies on the Great Barrier Reef build on previous work including a three-week expedition to Hawaiian reefs in 2006. Researchers there discovered more than 100 possible new species and location records to help build crucial data on the reefs of the Hawaiian archipelago. The researchers also recorded many species familiar in other ocean areas but never before recorded in Hawaii.

Fruitful insights

Following on from the award-winning book *Seeds; Time Capsules of Life*, Wolfgang Stuppy and Rob Kesseler have now published a second volume on fruit, exploring the natural history of this vital entity in both the plant and animal world. Stuppy is the seed morphologist for the Millennium Seed Bank Project at the Royal Botanic Gardens, Kew. While seeds lie at the heart of his work, he has inevitably come across the range of fruits that often contain them, which has prompted the latest book revealing the often

Ripe for study: Two of the illustrations from the new book *Fruit: Edible, Inedible, Incredible* show the recognisable and the bizarre. (Photos: copyright Papadakis.)